

Amendments to the Claims

This listing of claims will replace all prior versions, and listings of claims in the application.

1. (currently amended) A method of generating an isosteric structure of a polypeptide at least partially containing D-amino acids from 3D-coordinates and sequence information of an L-configured L-configurated precursor having an N-terminal amino group or substituted amino group, a C-terminal carboxy group or a carboxy derivative, a backbone and L-amino acid side chains, and comprising ~~the steps of~~ [[-]] at least partially replacing backbone CO groups with NH groups and vice versa, [[-]] while keeping fixed the 3D-coordinates of the precursors L-amino acid side chains, the N-terminal amino group or substituted amino group and the C-terminal carboxy group or carboxy derivative.

2. (currently amended) The method according to claim 1 comprising ~~the steps of~~ at least partially replacing backbone CO groups with NH groups and vice versa, [[-]] while keeping the 3D-coordinates of the precursor's L-amino acid side chains fixed, and replacing the N-terminal amino group or substituted amino group by a carboxy group or carboxy derivative and/or replacing the C-terminal carboxy group or carboxy derivative by an amino group or substituted amino group.

3. (currently amended) The method of claim 1, according to claims 1-2 wherein all backbone CO groups of the precursor are replaced by NH groups and vice versa.

4. (currently amended) The method of claim 1, according to claims 1-3, characterized by [[-]] at least partially replacing the proline residues or proline residues and their adjacent neighboring neighbouring residue in the structure and sequence of the precursor by organic molecules as building blocks mimicking the conformational properties of proline or of proline and its immediately neighboring neighbouring residue in the newly configured backbone.

5. (currently amended) The method of claim 1 according to claims 1 to 4 comprising the steps according to figure 1.

6. (currently amended) The method of claim 1 according to claims 1-5 conducted on a computer device.

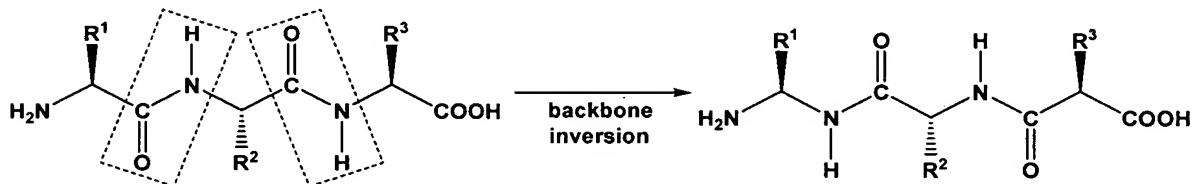
7. (currently amended) A method of generating a polypeptide comprising at least one D-amino acid and/or artificial amino acid, the method comprising ~~the steps of~~ obtaining an isosteric structure by [[a]] the method of claim 1-any of claims 1 to 6 and synthesizing the polypeptide of said isosteric structure.

8. (currently amended) The method of claim 7 [[or 8]], wherein the polypeptide consists of D-amino acids and/or artificial amino acids.

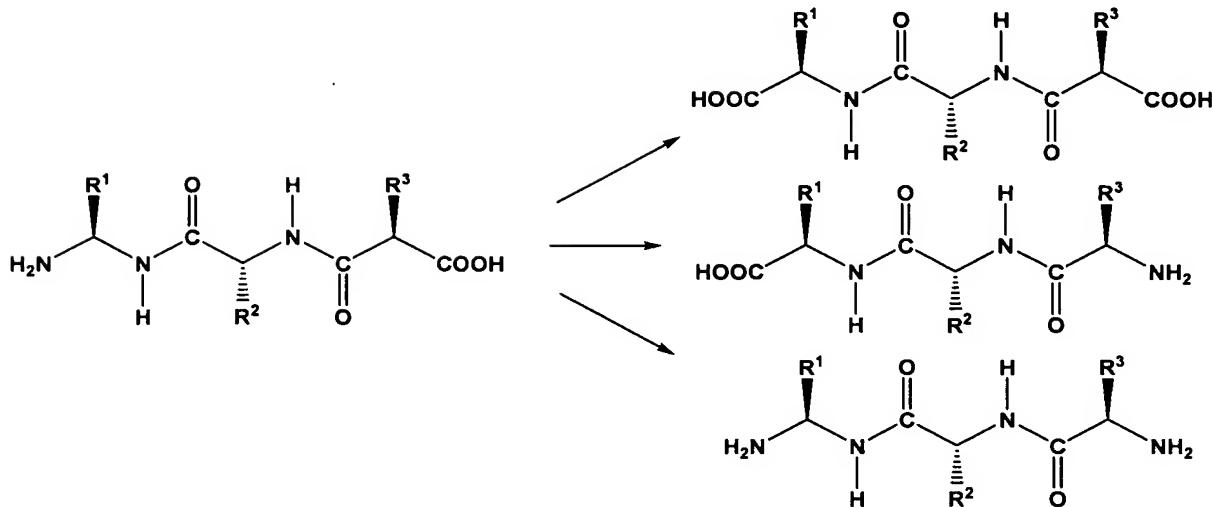
9. (currently amended) A polypeptide obtainable by [[a]] the method of claim 1 according to claims 1-8.

10. (currently amended) The polypeptide according to of claim 9 having less than 100 residues, ~~in particular 60 or less, or 40 or less residues but at least 7 residues.~~

11. (currently amended) The polypeptide of claim 9 according to claims 9-10 being characterized by the replacement of backbone CO with NH groups and vice versa, while C-terminal carboxy and N-terminal amino function are not changed, as illustrated ~~and exemplified non-exclusively~~ in Formula 1:

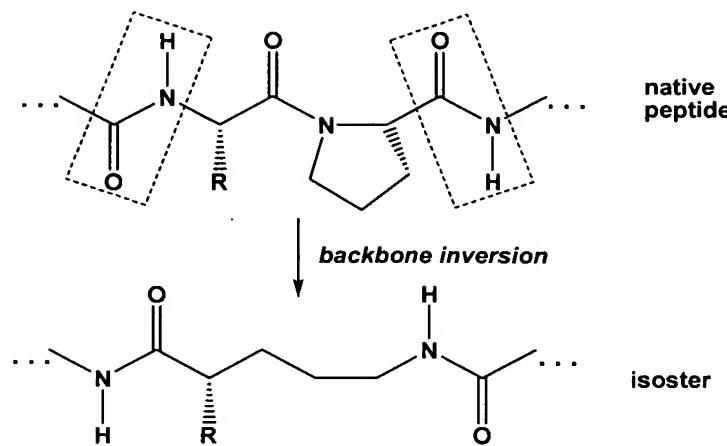


12. (currently amended) The polypeptide of claim 9 according to claim 9-11, in which either the terminal amino group is replaced by a Carboxy-group and/or the terminal carboxy group is replaced by an amino-group or in the which N- and C-terminus are exchanged with each other as illustrated ~~and exemplified non-exclusively~~ in Formula 2:

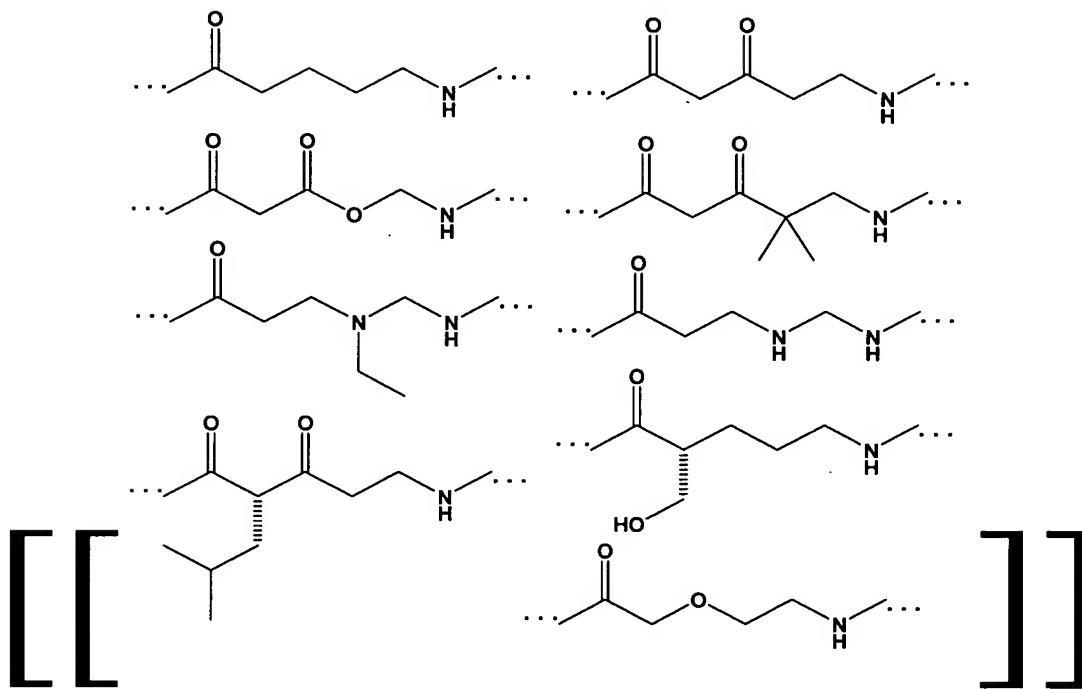


13. (currently amended) The polypeptide of claim 9 according to claims 9-12, wherein at least one proline residue of the precursor is replaced by glycine.

14. (currently amended) The polypeptide of claim 9 according to claims 9-13, in which 5-aminovaleric acid and its derivatives described by the generic formula ...-(CO)- $\text{X}^1-\text{X}^2-\text{X}^3-\text{X}^4-\text{NH}-\dots$, wherein X^1 , X^2 , X^3 , and X^4 are independently selected from CH_2 , $(\text{C}=\text{O})$, NH , NR , O , (CHR) , or (CR_2) , and wherein R is an amino group, an alcohol, halogen or any organic residue are used to replace a proline residue and its adjacent neighboring-neighbouring residue in the precursor sequence, as non-exclusively illustrated by Formulas Formula 4, demonstrating the use of 5-aminovaleric acid as building block, and 5, showing the use of exemplary, non-exclusive derivatives of 5-aminovaleric acid as building blocks. Formula 4:

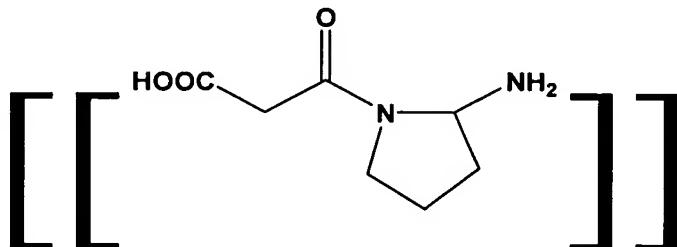


Formula 5:

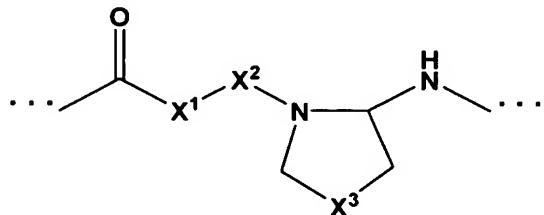


15. (currently amended) A compound having [[the]] Formula 7, ~~in particular 3-~~
~~(2S-Allyloxy carbonyl-amino-pyrrolidin-1-yl)-3-oxo-propionic acid (Formula 6)~~ wherein
 X^1 , X^2 and X^3 are independently selected from CH_2 , ($\text{C}=\text{O}$), O, S, NH, NR, (CHR), or
(CR_2), and wherein R is an amino group, an alcohol, halogen or any organic residue;
~~molecules described by the generic formula are non-exclusively illustrated in Formula 8.~~

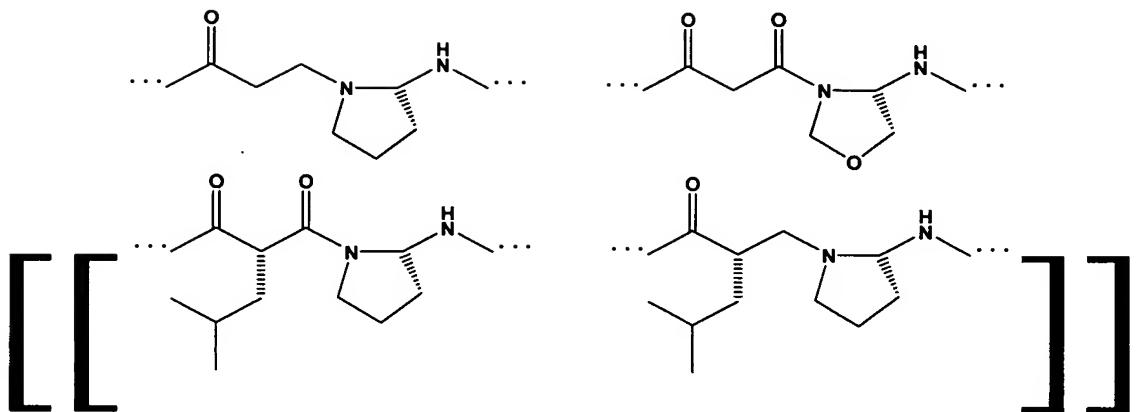
Formula 6:



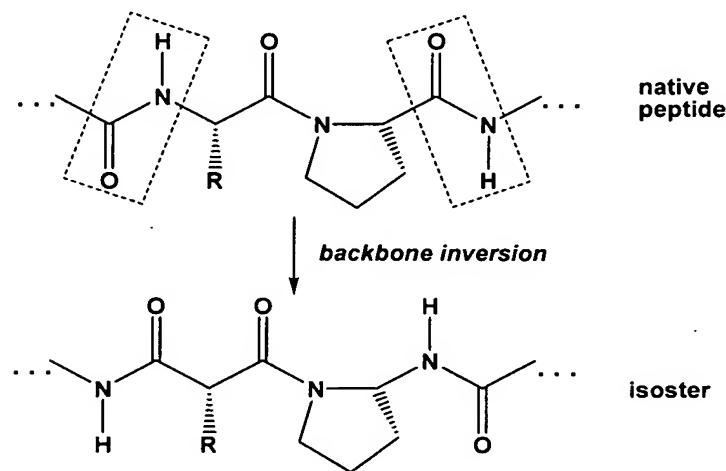
wherein Formula 7 is:



Formula 8

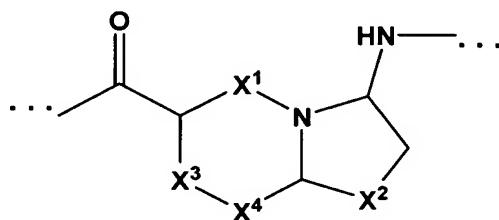


16. (currently amended) The polypeptide of claim 9 according to claims 9-15, in which a building block according to claim 15 is used to replace comprising a replacement of at least one proline residue and its immediately neighboring-neighbouring residue as illustrated non-exclusively in Formula 9:

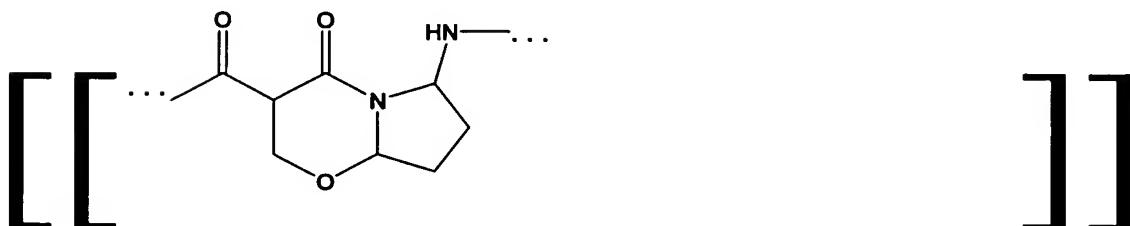
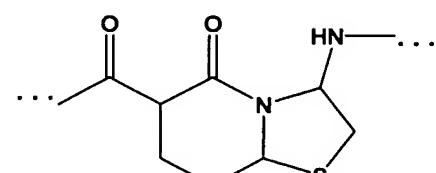
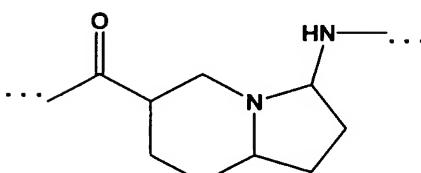
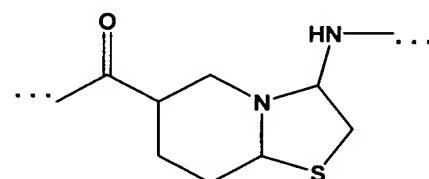
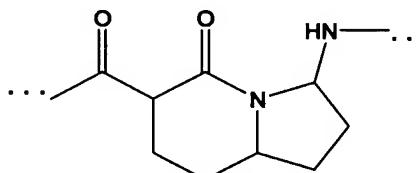


17. (currently amended) A compound of Formula 10, wherein X¹, X², X³ and X⁴ are independently selected from CH₂, (C=O), O, S, NH, NR, (CHR), or (CR₂), and wherein R is an amino group, an alcohol, halogen or any organic residue, whereby examples of respective molecules are non-exclusively shown in Formula 11.

wherein Formula 10 is:



Formula 11



18. (currently amended) The polypeptide of claim 14 according to claims 9-14,
~~16, in which a building block according to claim 15 is used to replace comprising a~~
~~replacement of~~ at least one proline residue and its immediately neighboring-neighbouring
residue.

19. (currently amended) The polypeptide obtainable by of claim 9 and using
further comprising at least one or a free combination of the compounds of Formula 5
~~building blocks specified in claims 12-16~~ as substitute for a proline or for a proline and
its immediately neighboring-neighbouring residue.

20. (currently amended) The polypeptide of claim 9 according to claims 9-19,
which is modified by acetylation of the N-terminus or amidation of the C-terminus or by
acetylation of the N- terminus and amidation of the C-terminus.

21. (currently amended) The polypeptide of claim 9 according to claims 9-20,
which is modified by extension of the precursor sequence by non-binding amino acids at
either the C-terminus or at the N-terminus or at both termini, whereby the number of
residues added in total is 15 or less, ~~in the preferred case 6 or less.~~

22. (currently amended) The polypeptide of claim 9 according to claims 9-20, in
which one or more amino acid residues other than proline are substituted by conservative
exchange using physicochemically related natural or unnatural amino acid residues,
while the binding behavior behaviour and structure required for binding are maintained.

23. (original) A polypeptide comprising at least one D-amino acid and/or artificial amino acid and 5-aminovaleric acid.

24. (currently amended) [[A]] The polypeptide of claim 23, comprising a sequence of a D-amino acid followed by 5-aminovaleric acid followed by a D-amino acid.

25. (currently amended) [[A]] The polypeptide of claim 23-~~or~~^{or} 24 comprising ~~consisting of~~ D-amino acids and/or artificial amino acids and at least one 5-aminovaleric acid.

26. (currently amended) [[A]] The polypeptide of ~~claim 23-any of claims 23 to~~ 25, wherein the 5-aminovaleric acid is substituted by a compound of Formula 7 building block of any one of claims 14, 15 and/or 16.

27. (currently amended) A polypeptide of the amino acid sequence:

ynnignlimqlldlllhelqlqtkkts-YNNIGNLIMQLDLLLHELQLQTKKTS.

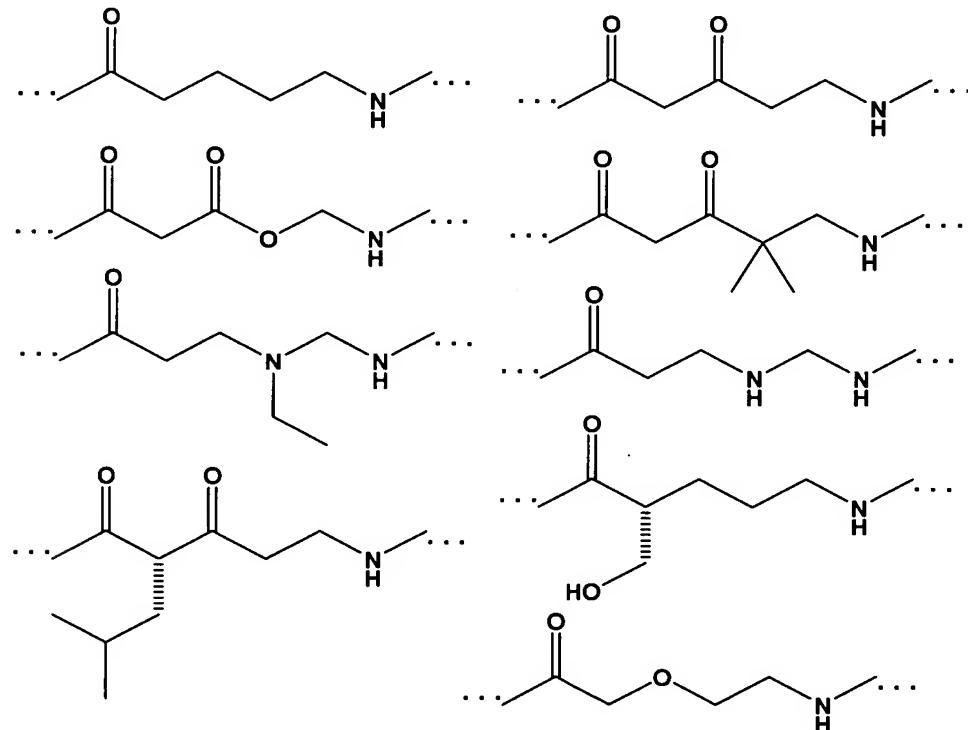
28. (currently amended) A method for Use of compounds according to claims 9-22 for vaccination or for diagnostic, pharmaceutical or cosmetic purposes using the polypeptide of claim 9.

29. (currently amended) A pharmaceutical preparation Pharmaceutical preparations comprising the polypeptide a compound of claim 9 according to claims 9-22.

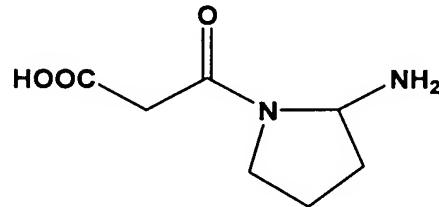
30. (new) The polypeptide of claim 10 having 60 residues or less.

31. (new) The polypeptide of claim 10 having 40 residues or less, but at least 7 residues.

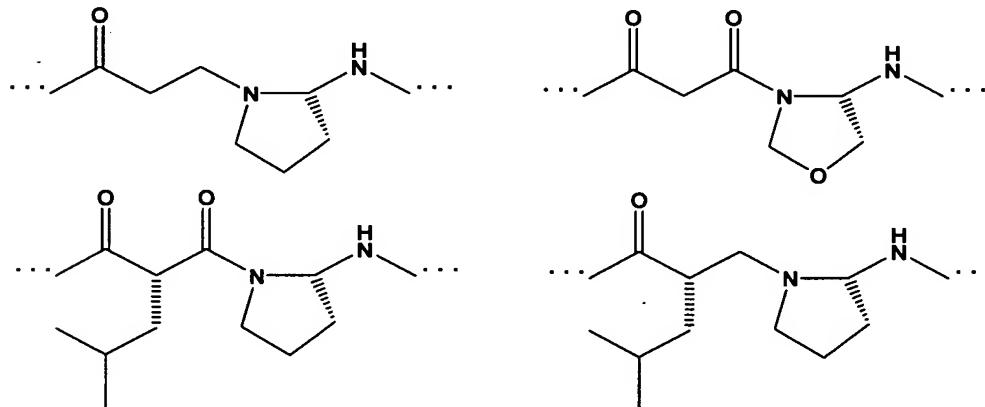
32. (new) The polypeptide of claim 14, wherein said polypeptide is selected from the group of polypeptides of Formula 5:



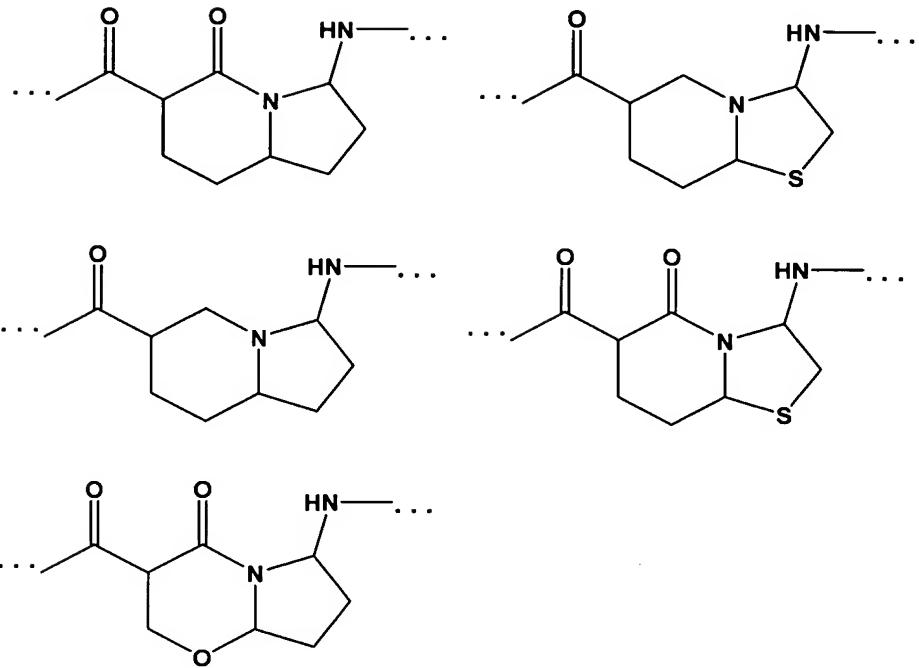
33. (new) The compound of claim 15, wherein said compound is 3-(2S)-Allyloxycarbonyl-amino-pyrrolidin-1-yl)-3-oxo-propionic acid (Formula 6)



34. (new) The compound of claim 15, wherein said compound is selected from the group of compounds of Formula 8:



35. (new) The compound of claim 17, wherein said compound is selected from the group of compounds of Formula 11:



36. (new) The polypeptide of claim 21, wherein the number of residues added in total is 6 or less.